

**WHAT IS CLAIMED IS:**

1. A method for controlling metabolism of nitric oxide comprising administering to an animal in need thereof an effective amount of a perfluorocarbon.

2. The method according to claim 1 wherein the perfluorocarbon is administered in an amount of at least about 0.5% w/volume of blood to inhibit nitric oxide activity.

3. The method according to claim 1 wherein the perfluorocarbon is administered in an amount of less than about 0.5% w/volume of blood to enhance nitric oxide activity.

4. The method according to claim 3 wherein the perfluorocarbon is administered in an amount of from about 0.01% to about 0.1% w/volume of blood to enhance nitric oxide activity.

5. The method according to claim 3 wherein at least one nucleophile is administered in conjunction with the perfluorocarbon.

6. The method according to claim 5 wherein the nucleophile is a thiol or mixture of thiols.

7. The method according to claim 6 wherein the thiol is  $\alpha$ -lipoic acid, L-cysteine, or glutathione.

8. The method according to claim 1 wherein the animal in need thereof is suffering from a disease or condition selected from the group consisting of

cardiovascular conditions, hypertension, angina, preeclampsia (pregnancy induced hypertension, toxemia, eclampsia, HELLP syndrome), hypotension, atherosclerosis, regulation of vascular conductance, blood clotting and thrombosis, regulation of blood flow, regulation of blood pressure, vasoplogia, septic shock, and myocardial ischemia; gastrointestinal disease to alter motility and pyloric stenosis;

lung functions selected from the group consisting of asthma, treatment of premature babies to increase lung function, and pulmonary hypertension;

inflammation, autoimmune and immune diseases and conditions selected from the group consisting of acute inflammation, arthritis, resistance to infection, cancer, lupus, anaphylactic reactions, and allograft rejections;

central nervous system conditions selected from the group consisting of behavior, epilepsy, Alzheimer's disease, stroke, and growth hormone disorders such as acromegaly;

diseases of the pancreas;

female reproductive systems or problems selected from the group consisting of ovulation, implantation/*in vitro* fertilization, premenstrual syndrome, dysmenorrhea, uterine contractile disorders, premature labor, cervical dilation,

contraception, symptoms of menopause, endocrine disorder, and hormone replacement;

male reproductive problems selected from the group consisting of impotence, penile erection, symptoms of male menopause, endocrine disorders, osteoporosis, and prostate hypertrophy;

bladder and kidney problems selected from the group consisting of incontinence, renal arterial stenosis, and hypertension;

osteoporosis, Paget bone disease, and rheumatoid arthritis;

dermatological problems selected from the group consisting of topical hair loss, eczema, autoimmune skin disease, and psoriasis.

9. The method according to claim 2 comprising treating hypotension and vasoplegia.

10. The method according to claim 3 comprising treating vasorelaxation.

11. The method according to claim 3 comprising treating blood clotting and thrombosis.

12. The method according to claim 3 comprising enhancing ischemic preconditioning.

13. The method according to claim 3 comprising suppressing restenosis after angioplasty.

14. The method according to claim 3 comprising treating preeclampsia.

15. A composition comprising a perfluorocarbon and a nucleophile.

16. The composition according to claim 15 wherein the nucleophile is a thiol.

17. The composition according to claim 16 wherein the thiol is  $\alpha$ -lipoic acid, and/or L-cysteine, and/or glutathione.

18. A method for preparing a composition for treating nitric oxide insufficiency comprising preparing or obtaining an emulsion comprising a perfluoro compound.

19. A method for preparing a composition for enhancing the effects of nitric oxide comprising preparing or obtaining an emulsion comprising a perfluoro compound.

20. The method according to claim 18 comprising adding to the emulsion a nucleophile.

21. A method for treating conditions associated with nitrosative stress comprising administering to an animal in need thereof an effective amount of a perfluorocarbon.

22. A method for regulating perturbations in interactions between local and systemic bond-remodeling regulatory pathways comprising administering to an animal in

need thereof an effective amount of a perfluorocarbon and an optional nucleophile.

23. A method for generating S-nitrosothiols *in vivo* comprising administering to an animal in need thereof an effective amount of a perfluorocarbon and an optional nucleophile.

24. A method for treating microbial or viral infections comprising administering to an animal in need thereof an effective amount of a perfluorocarbon and an optional nucleophile.

25. The method according to claim 24 wherein the viral infections are selected from the group consisting of rhinoviral infections and retroviral infections.

26. A method for treating leukemia comprising administering an effective amount of a perfluorocarbon to a patient in need thereof.

27. The method according to claim 26 wherein the patient is also irradiated with light of a visible wavelength.